

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 25-27, 31-36, and 38-49 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 25, lines 13-15 recite "at least one electrical insulation" which is made of a transparent plastic and then lines 18-19 recites "at least one electrical insulation" which is glass. It is unclear if the "at least one electrical insulation" in line 18 is a second electrical insulation" or if it is an alternative to the "at least one electrical insulation" made of plastic recited in lines 13-15.

Claim 25 recites the limitation "the two substrates" in line 20. There is insufficient antecedent basis for this limitation in the claim.

Claims 26, 27, 31-36, 38-46, and 48-49 are rejected for the same reasons since they depend from claim 25.

Regarding claim 26, lines 3-4 recite the limitation, "at least one electrical insulation". It is unclear if this is another electrical insulating member, or if it is referring to one of the electrical insulation members recited in claim 25, and if it is referring to one of the electrical insulations of claim 25, it is unclear which one.

Regarding claim 27, it is unclear which electrical insulation the claim limitation, "the electrical insulation", is referring to in line 2.

Regarding claim 31, it is unclear which electrical insulation the claim limitation, "the electrical insulation", is referring to in lines 1-2.

Regarding claim 49, it is unclear if the first and second layer of electrical insulation make up the "at least one electrical insulation" of claim 25, or if they are separate from the "at least one electrical insulation" of claim 25.

Regarding claim 47, lines 13-14 recite "at least one electrical insulation" which is made of a transparent plastic and then lines 18-19 recites "at least one electrical insulation" which is glass. It is unclear if the "at least one electrical insulation" in lines 18-19 is a second electrical insulation" or if it is an alternative to the "at least one electrical insulation" made of plastic recited in lines 13-14.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 25-33, 35, and 38-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Winsor (US 5,466,990).

Regarding claim 25, Winsor discloses a flat lamp comprising: at least two glass substrates (26,28) kept mutually parallel and defining an internal gas-filled space (12), each glass substrate having an internal surface facing in a direction of the internal space and an external surface opposite to the internal surface and facing in a direction away from the internal space; and two electrodes (40 and 38), a first of the two electrodes associated with a first one of the glass

substrates and a second of the two electrodes associated with a second one of the glass substrates, the two electrodes being away from the internal surface, at least one of the first and second electrodes is located on the external surface side of the respective substrate (26), wherein the internal surface of at least one substrate (26) is coated with a phosphor material (30), wherein said at least one electrode (38) on the external surface side is covered with at least one electrical insulation (74). The electrode (38) is covered with electrical insulation (68) that is made of glass that is laminated to the at least one glass substrate (26) via an intermediate plastic film or a resin or other material (for example, see col. 13, lines 22-28), that can make the two substrates (26 and 68) adhere to each other (for example, see the abstract and Fig. 6).

Winsor does not specifically recite the material of the electrical insulation (the diffuser (74)). However, transparent plastic is a known material used for diffusers in planar lamps. It has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. Thus, it would have been obvious to one having ordinary skills in the art at the time the invention was made to have formed the diffuser coating (74) from transparent plastic, since the selection of known materials for a known purpose is within the skill of the art.

Regarding claim 26, Winsor discloses the flat lamp, wherein at least one electrode (40) is affixed to the surface of the external face of the substrate (66) with which it is associated and is covered with at least one electrical insulation, the electrode being incorporated into the surface of the glass substrate or of the electrical insulation (for example, see Fig. 3).

Regarding claim 27, Winsor discloses the flat lamp, wherein at least one electrode is incorporated into the electrical insulation (39, bottom layer of Fig. 6, not labeled), either within its very thickness or on a surface (for example, see Fig. 6).

Regarding claim 31, Winsor discloses the flat lamp, wherein the electrical insulation (74) constitutes a sheet exhibiting an optical effect (diffuser).

Regarding claim 32-33, Winsor discloses the flat lamp, wherein the electrodes (40 and 38) are continuous, conducting and transparent coatings, each located on an external face side of a substrate and covering all of the external faces of the substrates (for example, see Fig. 6 and col. 5, lines 4-5).

Regarding claim 35, Winsor teaches the electrodes are transparent conductive films, but does not specifically recite the material used. However, it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. It is well known in the art to use a metal oxide having electronic vacancies, including material, such as ITO, for forming transparent electrodes. Accordingly, it would have been obvious to one having ordinary skills in the art at the time the invention was made to have used ITO for the transparent electrodes, since the selection of known materials for a known purpose is within the skill of the art.

Regarding claim 38, Winsor discloses the lamp as claimed in claim 37, wherein the phosphor is selected to determine a color of illumination (for example, see col. 14, lines 32-50).

Regarding claims 39 and 41, Winsor teaches spacers (48), made of a non-conducting glass material, placed between the two glass substrates (for example, see Fig. 7 and col. 7, lines 1-3 and col. 8, lines 41-44).

Regarding claim 40, the combined invention of Park and Eliasson does not specifically teach the separation between the two substrates being around 0.3 to 5 mm. However, it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. It would have been obvious to

one having ordinary skill in the art at the time the invention was made to provide an appropriate range for the distance separating the two substrates (discharge space), since optimization of workable ranges is considered within the skill of the art.

Regarding claim 42, Winsor discloses the lamp of claim 39, wherein the lateral surfaces of the spacers (48) are coated with a phosphor material (for example, see Fig. 7).

Regarding claim 43, Winsor does not specifically recite the gas pressure in the internal space being around 0.05 to 1 bar. It has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide an appropriate range for the gas pressure of the lamp, since optimization of workable ranges is considered within the skill of the art.

Regarding claim 44, Winsor does not specifically recite a hole in one of the substrates that is obstructed by a seal. However, it is well known in the art to include an exhaust hole in order to provide a means for evacuating the discharge space and introducing the desired gas mixture, after which the hole is sealed. It is noted that the applicant's specific placement of the hole, does not solve any of the stated problems or yield any unexpected result that is not within the scope of the teachings applied. Therefore, it is considered to be a matter of choice, which a person of ordinary skill in the art would have found obvious to select any outer member of the flat lamp for providing the hole, as long as the hole is capable of providing a means for introducing gas into the envelope, and that it can be sealed thereafter.

The Examiner notes that the claim limitation that the "hole is drilled" is drawn to a process of manufacturing which is incidental to the claimed apparatus. It is well established that a claimed apparatus cannot be distinguished over the prior art by a process limitation.

Consequently, absent a showing of an unobvious difference between the claimed product and the prior art, the subject product-by-process claim limitation is not afforded patentable weight (see MPEP 2113).

Regarding claim 45, Winsor the contour of the glass substrates is polygonal, concave or convex, or curved with a constant or variable radius of curvature (for example, see Fig. 6).

Regarding claim 46, Winsor discloses the lamp having two illuminating faces (for example, see Fig. 6 and col. 5, lines 4-5).

Regarding claim 48, Winsor discloses an application of the flat lamp in the production of architectural or decorative elements that illuminate and/or have a display function (for example, see col. 10, lines 62-67).

Regarding claim 47, Winsor discloses a process for manufacturing a flat lamp comprising: at least two glass substrates (26,66) kept mutually parallel and defining an internal gas-filled space (12), each glass substrate having an internal surface facing in a direction of the internal space and an external surface opposite to the internal surface and facing in a direction away from the internal space; and two electrodes (40 and 38), a first of the two electrodes associated with a first one of the glass substrates and a second of the two electrodes associated with a second one of the glass substrates, the two electrodes being away from the internal surface, at least one of the first and second electrodes is located on the external surface side of the respective substrate (26), wherein the internal surface of at least one substrate (26) is coated with a phosphor material (30), affixing at least one electrode (22) to all of the external surface of the substrate (26) with which it is associated and covering all of the at least one electrode on the external surface side with at least one electrical insulation (74), the electrode (22) being

incorporated into the surface of the glass substrate (26) or into the thickness or on the surface of the electrical insulating material.

Winsor does not specifically recite the material of the electrical insulation (the diffuser (74)). However, transparent plastic is a known material used for diffusers in planar lamps. It has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. Thus, it would have been obvious to one having ordinary skills in the art at the time the invention was made to have formed the diffuser coating (74) from transparent plastic, since the selection of known materials for a known purpose is within the skill of the art.

The electrode (38) is covered with electrical insulation (68) that is made of glass that is laminated to the at least one glass substrate (26) via an intermediate plastic film or a resin or other material (for example, see col. 13, lines 22-28), that can make the two substrates (26 and 68) adhere to each other (for example, see the abstract and Fig. 6).

The method comprises: screen-printing phosphor on at least one of the glass substrates (col. 11, lines 8-10); depositing spacers (48) on one of the glass substrates; joining the glass substrates together to be parallel; sealing an internal space by a peripheral sealing material (16,20) (col. 12, line 63 – col. 13, line7); replacing atmosphere contained in the internal space with plasma gas (col. 10, lines 6-8); joining at least one first electrical insulation (39) to at least one glass substrate (66), the electrical insulation configured to cover or to incorporate, internally or on a surface, the electrode (40) with which one of the faces of the substrates is to be associated (for example, see Figs. 6 and 7).

Winsor does not specifically recite drilling a hole in one of the substrates. However, it is well known in the art to form an exhaust hole in order to provide a means for evacuating the

discharge space and introducing the desired gas mixture, after which the hole is sealed. It is noted that the applicant's specific placement of the hole, does not solve any of the stated problems or yield any unexpected result that is not within the scope of the teachings applied. Therefore, it is considered to be a matter of choice, which a person of ordinary skill in the art would have found obvious to select any outer member of the flat lamp for providing the hole, as long as the hole is capable of providing a means for introducing gas into the envelope, and that it can be sealed thereafter. It is noted that the applicant's specific method of drilling, does not solve any of the stated problems or yield any unexpected result that is not within the scope of the teachings applied. Therefore, it is considered to be a matter of choice, which a person of ordinary skill in the art would have found obvious to select any known method of forming the exhaust hole.

Claim 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Winsor (US 5,466,990) in view of Gellert et al. (US 5,006,758).

Regarding claim 36, Winsor does not specifically recite that one of the electrodes is an integrated metal grid incorporated into a plastic film. However, Gellert teaches a flat lamp that has one electrode (6) being in the form of a metal grid that is incorporated into a plastic film (3) (for example, see col. 3, lines 35-37 and Fig. 1). Gellert et al. teach that the use of such an electrode embedded in plastic reduces the manufacturing time as well manufacturing costs (for example, see col. 4, line 67 - col. 5, line 19). Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use an integrated metal grid incorporated into a plastic film as at least one of the electrodes in the device taught by Winsor, in order to reduce time and costs of manufacturing the device.

Regarding claim 49, Winsor teaches each glass substrate (26,28) is covered with a first (65,66) and second (68,39) layer of electrical insulation on the side of the glass substrate facing in a direction away from the internal space (12), and the respective electrode (22,24) is incorporated into the layer of the electrical insulation (65,66) adjacent the glass substrate (26,28).

Response to Arguments

Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Other Prior Art Cited

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Burgess (US 5,088,012) recites the use of a plastic diffuser (40) in a flat lamp.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to *Anthony Perry* whose telephone number is **(571) 272-2459**. The examiner can normally be reached between the hours of 9:00AM to 5:30PM Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel, can be reached on **(571) 272-2457**. **The fax phone number for this Group is (571) 273-8300**.

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